CLINICAL INDICATORS OF THE NURSING OUTCOMES CLASSIFICATION TO EVALUATE THE PATIENT UNDERGOING PERCUTANEOUS RENAL BIOPSY

INDICADORES CLÍNICOS DA NURSING OUTCOMES CLASSIFICATION PARA AVALIAR O PACIENTE SUBMETIDO À BIÓPSIA RENAL PERCUTÂNEA

INDICADORES CLÍNICOS DE LA NURSING OUTCOMES CLASSIFICATION PARA EVALUAR A LOS PACIENTES SOMETIDOS A BIOPSIA RENAL PERCUTÁNEA

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ABSTRACT

Objectives: to select clinical indicators of Blood Coagulation (0409), Circulation Status (0401), Blood loss Severity (0413), Pain Level (2102), and Comfort Status: physical (2010) of the Nursing Outcomes Classification and to elaborate on their conceptual and operational definitions to assess patients undergoing percutaneous renal biopsy. **Method**: an expert consensus study was conducted in a university hospital in southern Brazil. The sample consisted of 12 experts. Data collection occurred through an electronic form using Google Forms, in which the clinical indicators to be selected to evaluate patients undergoing percutaneous renal biopsy were listed. The indicators that obtained a minimum of 80% agreement among the experts were selected. The data were organized in a table to elaborate the definitions of each indicator. **Results**: eleven clinical indicators were selected: bleeding, bruising, hematuria, systolic blood pressure, diastolic blood pressure, abdominal distension, skin and mucous membrane pallor, reported pain, facial expressions of pain, physical well-being, and comfortable position. Subsequently, the conceptual and operational definitions for these indicators were elaborated based on the literature. **Conclusion**: the selected clinical indicators corroborate the possible complications of percutaneous renal biopsy described in the literature and may help nurses evaluate patients undergoing the procedure. It is inferred that conceptual and operational definitions reduce subjectivity and help more accurately assess patients in clinical practice.
Keywords: Nursing Care; Biopsy; Kidney; Patient Outcome Assessment.

RESUMO

Objetivos: selecionar indicadores clínicos dos resultados de Enfermagem Coagulação Sanguínea (0409), Estado Circulatório (0401), Gravidade da perda de Sangue (0413), Nível de dor (2102) e Estado de Conforto: físico (2010) da Nursing Outcomes Classification e elaborar suas definições conceituais e operacionais para avaliação de pacientes submetidos à biópsia renal percutânea. **Método:** estudo de consenso de especialistas realizado em um hospital universitário do Sul do Brasil. A amostra foi de 12 especialistas. A coleta de dados ocorreu por meio de formulário eletrônico no Google Forms, no qual foram listados os indicadores clínicos a serem selecionados para avaliar pacientes submetidos ao procedimento de biópsia renal. Foram selecionados os indicadores que obtiveram concordância mínima de 80% entre os especialistas. Os dados foram organizados em um quadro para a elaboração das definições de cada indicador. **Resultados:** foram selecionados 11 indicadores clínicos: sangramento, hematoma, hematúria, pressão arterial sistólica, pressão arterial diastólica, distensão abdominal, palidez da pele e das mucosas, dor relatada, expressões faciais de dor, bem-estar físico e posição confortável. Posteriormente, com base na literatura, foram elaboradas as definições conceituais e operacionais para esses indicadores. **Conclusão:** os indicadores clínicos selecionados estão em consonância com as possíveis complicações da biópsia renal percutânea descritas na literatura, podendo auxiliar os enfermeiros na avaliação dos pacientes submetidos ao procedimento. Infere-se que as definições conceituais e operacionais reduzem a subjetividade e facilitam avaliações mais acuradas dos pacientes na prática clínica.
Palavras-chave: Cuidados de Enfermagem; Biópsia; Rim; Avaliação de Resultados da Assistência ao Paciente.

RESUMEN

Objetivos: seleccionar los indicadores clínicos de los resultados de Enfermería Coagulación Sanguínea (0409), Estado Circulatorio (0401), Gravedad de la pérdida de Sangre (0413), Nivel de dolor (2102) y Estado de Confort: físico (2010) de la Nursing Outcomes Classification y elaborar sus definiciones conceptuales y operativas para la evaluación de los pacientes sometidos a biopsia renal percutánea. **Método:** estudio de consenso de expertos, realizado en un hospital universitario del sur de Brasil. La muestra fue de 12 especialistas. La recogida de datos se realizó a través de un formulario electrónico en Google Forms, en el que se enumeraban los indicadores clínicos a seleccionar para la evaluación de los pacientes sometidos

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al procedimiento. Se seleccionaron los indicadores que obtuvieron un acuerdo mínimo del 80% entre los especialistas. Los datos se organizaron en una tabla para la elaboración de las definiciones de cada indicador. **Resultados:** *se seleccionaron 11 indicadores clínicos: hemorragia, hematoma, hematuria, presión arterial sistólica, presión arterial diastólica, distensión abdominal, palidez de la piel y las mucosas, dolor declarado, expresiones faciales de dolor, bienestar físico y posición cómoda. A continuación, se elaboraron las definiciones conceptuales y operativas correspondientes, basadas en el documento.* **Conclusión:** *los indicadores clínicos seleccionados están en consonancia con las posibles complicaciones de la biopsia renal percutánea descritas en la literatura y pueden ayudar al personal de enfermería en la evaluación de los pacientes sometidos al procedimiento. Se infiere que las definiciones conceptuales y operativas reducen la subjetividad y facilitan evaluaciones más precisas de los pacientes en la práctica clínica.*

Palabras clave: *Cuidados de Enfermería; Biopsia; Riñón; Evaluación del Resultado de la Atención al Paciente.*

INTRODUCTION

Percutaneous renal biopsy (PRB) is a procedure performed to obtain renal tissue samples and is considered the gold standard for diagnosing kidney diseases;[1] it is used both to diagnose pathologies in the native kidney and to verify rejection in kidney transplantation.[2] Moreover, PRB is considered a safe technique, although it is not free of complications as it is an invasive procedure. In most cases, it is performed with local anesthesia and guided by ultrasound and disposable and automatic devices. Evidence has shown that automated needles provide a sample with more glomeruli and reduce complications.[3–5]

The most frequent complications resulting from PRB are associated with the possibility of bleeding, and the risk factors include hypertension, age, reduced renal function, obesity, anemia, decreased platelets, and changes in hemostasis.[1,6] The rate of minor complications (i.e., those that are less severe and do not require surgical intervention, transfusion, or complementary treatment) can vary from 10 to 20%.[7] Major complications, which are the most serious and include macroscopic hematuria and retroperitoneal bruising, require treatment and/or interventions related to surgery, blood transfusion, or even invasive procedures and occur in 1.2 to 6.6% of patients undergoing PRB.[5] Life-threatening complications occur in less than 0.1% of PRB.[8]

Although the most serious complications are not frequent in patients submitted to PRB, one must consider that there are risks, regardless of the severity. This makes it crucial for the nurse responsible for the care to be alert, perform accurate clinical evaluation, and supervise the patient's condition in order to prevent damage and intercurrences. For this, the nurse can utilize instruments such

as standardized language systems, which help organize diagnostic reasoning, evaluation, and decision making.[9]

Among the systems, the Nursing Outcomes Classification (NOC) presents nursing outcomes in a standardized manner; each comprises a set of clinical indicators and Likert-type scales capable of assessing the patient's status and the effectiveness of Nursing interventions, organizing and directing care planning and implementation.[10]

Hence, considering the possibility of complications and the impact on the safety and comfort of patients undergoing PRB, it is pivotal for nurses to identify the risks of these complications using knowledge and tools such as the NOC, which can provide more accurate assessments. Nonetheless, despite numerous studies based on the NOC, its use in clinical practice is still incipient. Furthermore, there is a need for further research on selecting the best indicators to be used and attributing conceptual and operational definitions that qualify their accuracy in patient care after PRB.[11–15] This study's relevance is that it seeks to show the NOC indicators applicable to clinical practice and, thus, favor an accurate assessment of patients submitted to PRB and avoid complications after the procedure.

Given the above, this study sought to select the clinical indicators of the Nursing outcomes blood coagulation (0409), circulation status (0401), blood loss severity (0413), pain level (2102), and comfort status: physical (2010) from the NOC and elaborate their conceptual and operational definitions to assess patients undergoing PRB.

METHOD

This is an expert consensus study conducted in January 2018 at a large university hospital that is one of the references for kidney transplantation in southern Brazil, performing 25% of the procedures in the state. In 2017, the Renal Transplant Program of this institution completed 40 years, and roughly 1300 patients were being followed up in this center, which performs, on average, 100 PRB per year.[16]

The study sample was 12 specialist nurses in nephrology who were selected by convenience. The participants were included according to criteria described in studies involving diagnoses, outcomes, and Nursing interventions in Brazil.[17] Hence, the following aspects were considered: experience of at least four years in the specific area (4 points), one year in clinical teaching in the area or the use of Nursing classifications (1 point), participation in research with articles on the theme published in reference journals (1 point), participation of at least two

years in a research group in the area (1 point), PhD in Nursing (2 points), Master's degree in Nursing, and specialization or residence in Nursing (1 point). One point was added for each additional year of clinical or teaching experience. Thus, specialists were classified as: junior (at least 5 points), master (6–20 points), and senior (>20 points).[17]

Data collection was conducted using an electronic form prepared on Google Forms containing the five NOC outcomes with their definitions, which were previously selected by the researchers considering the literature on PRB and its complications.[1–2,10,18] The results were blood coagulation (0409) with 20 indicators, circulation status (0401) with 40 indicators, blood loss severity (0413) with 17 indicators, pain level (2102) with 22 indicators, and comfort status: physical (2010) with 24 indicators. A total of 123 clinical indicators were listed in the instrument built on Google Forms with the options "select" and "do not select." The instrument, with an access link, was emailed to the specialists, who were instructed to mark one of the options and select the most appropriate indicators to evaluate patients undergoing PRB based on their scientific knowledge and clinical practice in nephrology. By answering the instrument, the specialists consented to participate in the study.

In the data analysis, the indicators of the five NOC outcomes that obtained ≥80% of agreement among the experts were selected. After this step, the conceptual and operational definitions of each clinical indicator selected by the experts were constructed considering its magnitude on the 5-point Likert scale of the NOC, in which 1 is the worst state and 5 is the best.[10]

The construction of the definitions was based on the theoretical and scientific literature on the care of patients undergoing PRB.[2–7] Bibliographic research was performed in CAPES and Medline/Pubmed journals, and websites and books of interest on this theme. After preparing the conceptual and operational definitions of the indicators, a second round was carried out with the experts in a face-to-face meeting to discuss and refine the final version of the form, with the definitions already included. The form was applied in the evaluation of 13 patients to improve and validate, in clinical practice, what had been built.[19]

This study is one of the stages of a larger project approved by the Ethics and Research Committee of the institution (protocol no. 170430); all participants (nurses and patients) signed the informed consent form in two copies. The study followed Resolution no. 466/2012 of the National Health Council.[20]

RESULTS

Most of the 12 nurse specialists were female (n = 11; 91.7%), with a median time of training of 18 (12–27) years and professional activity of 16.5 (11–24) years. Three (25%) nurses had a specialist title in nephrology, six (50%) had a master's degree, and two (16.7%) had a PhD. Clinical care was the predominant field of practice with seven (58.3%) nurses. Three nurses were classified as senior specialists and nine as master specialists.

Among the total of 123 indicators of the five NOC outcomes studied, 11 were selected by the experts as essential in evaluating the patient after PRB. Of these 11 indicators, three were from the blood coagulation outcome, two from the circulation status outcome, two from the blood loss severity outcome, two from the pain level outcome, and two from the comfort status: physical outcome, which were defined conceptually and operationally (Figure 1).

DISCUSSION

The five outcomes of the NOC with 123 clinical indicators were submitted to the consensus of Nursing experts in nephrology, and 11 indicators were deemed essential to clinical practice. Our findings showed that there was more concern about the possibility of bleeding since the outcome that had the highest number of selected indicators was "blood coagulation (0409)," which was defined by the NOC as "extent to which the blood coagulates within the normal period."[10] For this outcome, the indicators of "bleeding (040902)," "bruising (040903)," and "hematuria (040918)" were selected.

The indicator "bleeding (040902)" allows one to assess vascular bed blood loss from the puncture site and varies quantitatively and qualitatively in severity. Automated biopsy instruments and real-time ultrasound guidance have improved safety since the procedure was first described, although the risk of bleeding remains, which in some cases can be significant.[21] Of all forms of complication, bleeding is the most frequent and occurs mainly in the first 12–24 h after the procedure in almost all patients.[18] Therefore, nurses must be aware of the signs and symptoms that may indicate the occurrence of bleeding, including interventions to reduce the risk.

The indicator "bruising (040903)" evaluates blood accumulation in soft tissues, which is characterized by a palpable hardening area under the skin around the puncture site of the renal biopsy, which may change size. The indicator "hematuria (040918)," in turn, refers to the occurrence of blood in the urine and is classified

Figure 1 - Conceptual, operational definitions, and magnitude of the NOC outcome indicators blood coagulation (0409), circulation status (0401), blood loss severity (0413), pain level (2102), comfort status: physical (2010) for assessing patients submitted to PRB

Blood coagulation (0409): Extent to which blood clots within the normal period.		
Indicator, numerical code, and conceptual definition	**Operational definition of the indicator**	**Magnitude on the Likert scale for applying the indicator**
Bleeding (040902) An event characterized by blood loss from the vascular bed from the puncture site with varying degrees of severity in terms of quantitatively and qualitatively	Checked by visual inspection at the puncture site	**1.** Bleeding with hemodynamic instability and need for blood product transfusion. **2.** Bleeding with hemodynamic instability without the need for blood product transfusion. **3.** Bleeding without hemodynamic instability, requiring manual compression for at least 15 min. **4.** Bleeding without hemodynamic instability with the need for light manual compression. **5.** No bleeding at the puncture site
Bruising (040903) Blood accumulation in soft tissue characterized by an area of palpable induration under the skin around the renal biopsy puncture site, which may vary in size	Identified by visual inspection and palpation techniques in the tissue around the puncture site. Classified according to size, which is determined by the longest dimension measured with a ruler between the puncture site	**1.** Retroperitoneal bruising (>10 cm in diameter) with hemodynamic instability and need for blood transfusion or surgical evacuation. **2.** Large bruising (>10 cm in diameter) without hemodynamic instability requiring manual/mechanical compression. **3.** Moderate bruising (5–10 cm in diameter) requiring manual/mechanical compression. **4.** Small (<5 cm in diameter) or delimited bruising without further manual/mechanical compression. **5.** Absence of bruising at the puncture site
Hematuria (040918) Presence of blood in the urine, which can be classified as macroscopic hematuria and microscopic hematuria	Checked by visual inspection, the urinalysis strip test, and the patient's and/or caregiver's report. Note: Disregard a positive result if the patient is female and menstruating	**1.** Presence of macroscopic hematuria with urinalysis strip ca. 250Ery/μL. **2.** Presence of hematuria with urinalysis strip ca. 50Ery/μL. **3.** Presence of hematuria with urinalysis strip ca. 25Ery/μL. **4.** Presence of microscopic hematuria and urinalysis strip with low concentration ca. between 5 and 10Ery/μL. **5.** Absence of hematuria. A negative result on the urinalysis strip test
Circulation status (0401): Unobstructed unidirectional blood flow at an appropriate pressure through large vessels of the systemic and pulmonary circulations.		
Indicator, numerical code, and conceptual definition	**Operational definition of the indicator**	**Magnitude on the Likert scale for applying the indicator**
Systolic blood pressure (040101) The maximum value of blood pressure exerted in the arteries during ventricular myocardial contraction	Checked by systolic blood pressure parameters using a sphygmomanometer, stethoscope, or digital device	**1.** A decrease of 20 mmHg or more in the baseline SBP value. **2.** Decrease of 15 mmHg in the baseline SBP value. **3.** Decrease of 10 mmHg in the baseline SBP value. **4.** Decrease of 5 mmHg in the baseline SBP value. **5.** No change from the baseline SBP value
Diastolic blood pressure (040102) A minimum value of blood pressure exerted in the arteries during ventricular myocardial expansion/relaxation	Checked by diastolic blood pressure parameters using a sphygmomanometer and stethoscope or digital device	**1.** A decrease of 20 mmHg or more in the baseline DBP value. **2.** Decrease of 15 mmHg in the baseline DBP value. **3.** Decrease of 10 mmHg in the baseline DBP value. **4.** Decrease of 5 mmHg in the baseline DBP value. **5.** No change from baseline DBP value
Blood loss severity (0413): Severity of signs and symptoms of internal or external bleeding.		
Indicator, numerical code, and conceptual definition	**Operational definition of the indicator**	**Magnitude on the Likert scale for applying the indicator**
Abdominal distention (041306) Defined as an increase in the abdomen volume due to gas or fluid accumulation	Assessed by abdominal distension using superficial palpation, inspection, and auscultation. Abdominal distention should be assessed as localized or generalized	**1.** Presence of abdominal distension, non-depressible abdomen with pain on superficial palpation. **2.** Presence of moderate abdominal distension, abdomen barely depressible, and pain on superficial palpation. **3.** Presence of moderate distension, abdomen barely depressible, and no pain on superficial palpation. **4.** Presence of mild abdominal distension, depressible abdomen, and no pain on superficial palpation. **5.** Absence of abdominal distension

...continuation

Figure 1 - Conceptual, operational definitions, and magnitude of the NOC outcome indicators blood coagulation (0409), circulation status (0401), blood loss severity (0413), pain level (2102), comfort status: physical (2010) for assessing patients submitted to PRB

Blood loss severity (0413): Severity of signs and symptoms of internal or external bleeding.		
Indicator, numerical code, and conceptual definition	**Operational definition of the indicator**	**Magnitude on the Likert scale for applying the indicator**
Skin and mucous membrane pallor (041313) Symptomatic sign of decreased blood flow in a certain body area. Because of this, the skin and mucous membranes lose their normal coloring	Evaluated by inspecting the extremities and mucous membranes during patient assessment; associated with evaluating capillary refill with compression/ decompression of the pulp of one or more digits	**1.** Presence of skin and mucosal membrane pallor with capillary refill time ≥ 10 s. **2.** Presence of skin and mucosal membrane pallor with capillary refill time > 3 and < 10 s. **3.** Presence of skin and mucous membrane pallor with capillary refill time ≤ 3 s. **4.** Presence of mild skin membrane pallor with capillary refill time ≤ 3 seconds. **5.** Absence of skin and mucosal membrane pallor
Pain level (2102): Severity of pain observed or reported.		
Indicator, numerical code, and conceptual definition	**Operational definition of the indicator**	**Magnitude on the Likert scale for applying the indicator**
Reported pain (210201) Self-reporting of the painful experience. The response may be spontaneous or prompted	Performed by questioning the patient about their pain level using a visual analog or verbal numerical pain scales by asking how well they rate their pain from 0 to 10. Question and record the location of the pain	**1.** Ten (10) = unbearable pain. **2.** Seven to nine (7–9) = strong pain. **3.** Four to six (4–6) = moderate pain. **4.** One to three (1–3) = low pain. **5.** Zero (0) = no pain. Pain site: _____
Facial expressions of pain (210206) It is characterized by changes in facial mimicry during pain episodes	Performed by observing if the patient presents a change in facial expression as an indication of pain during the evaluation, such as wrinkled forehead, twisted mouth, crying face, eyebrow twitching, tongue reactions, chin tremor, and lip opening.	**1.** Displays facial expressions of pain continuously during the evaluation. **2.** Displays facial expressions of pain 5 to 6 times during the evaluation. **3.** Displays facial expressions of pain 3 to 4 times during the evaluation. **4.** Displays facial expressions of pain 1 to 2 times during the evaluation. **5.** No facial expressions of pain during the evaluation
Comfort state: physical (2010): Physical relaxation related to body sensations and homeostatic mechanisms.		
Indicator, numerical code, and conceptual definition	**Operational definition of the indicator**	**Magnitude on the Likert scale for applying the indicator**
Physical wellness (201002) Sensation perceived and reported by the patient regarding the general state of physical comfort	Performed by observing and questioning whether the patient exhibits characteristics of physical well-being, such as: - good physical mobility; - feeling comfortable; - normal breathing; - fatigue control; - comfortable position; - appetite after diet release.	**1.** No physical well-being. **2.** Exhibits 1 to 2 characteristics of physical well-being. **3.** Exhibits 3 to 4 characteristics of physical well-being. **4.** Exhibits 5 to 6 characteristics of physical well-being. **5.** Exhibits 7 or more characteristics of physical well-being
Comfortable position (201004) Body position that feels comfortable	Performed by asking the patient if they are comfortable with their body position. One must also verify the need to use non-pharmacological (pillow, cushion for support, etc.) and/ or pharmacological methods to comfortably position the patient	**1.** Patient does not feel comfortable even with the use of non-pharmacological and pharmacological methods. **2.** Patient feels in a comfortable position only with the use of a non-pharmacological and pharmacological method. **3.** Patient in a comfortable position but required a pharmacological method. **4.** Patient in a comfortable position but required a non-pharmacological method. **5.** Patient in a comfortable position without non-pharmacological and/or pharmacological methods

as macroscopic and microscopic hematuria. These two indicators are highlighted because, among the complications resulting from PRB classified as major, massive bleeding stands out, with hemodynamic instability, bruisings accompanied by pain, and hematuria with obstruction of the urinary tract by clots. Nonetheless, some of these complications from bleeding (e.g., bruising, microscopic, and macroscopic transient hematuria) are more frequent and generate fewer complications because they also occur when there is a lower degree of bleeding, not requiring additional interventions.[18]

The indicator called "systolic blood pressure (040101)" measures the highest value of blood pressure in the arteries during ventricular myocardial contraction. Its value is considered normal if it does not exceed ≥135 mmHg. The indicator "diastolic blood pressure (040102)" indicates the lowest value of blood pressure in the arteries during ventricular myocardial dilation, and its normal parameter is ≥85 mmHg. These indicators vary due to neurohumoral, behavioral, and environmental factors, and their measurement can be auscultatory using a stethoscope, sphygmomanometer, or an electronic device.[22] Considering the risk of complications and changes that may occur in the hemodynamic pattern after the procedure, assessing these indicators enables one to measure the recovery and changes that occurred throughout the evaluations using the patient's baseline condition as a parameter.

The indicator "abdominal distention (041306)" refers to an enlargement of the abdomen due to accumulated gas or fluids; it can occur due to post-procedure fluid leakage or obstruction of organs in the abdominal region.[23] Assessing this indicator allows one to verify the severity of the patient's blood loss and the occurrence of signs of internal bleeding from the puncture. The indicator "skin and mucous membrane pallor (041313)" is a symptomatic sign of reduced blood flow in a certain body area. This indicator enables one to evaluate the level of vascular oxygenation concerning the time the skin circulation returns to its normal conditions, making it possible to verify how the patient's blood flow was maintained after the biopsy.[24] We highlight the importance of building conceptual and operational definitions to obtain a standardized assessment among the professionals who follow the patient after the procedure.

The indicators "reported pain (210201)" and "facial expressions of pain (210206)" refer to the item "pain level." Pain management by nurses is vital for patient recovery because pain is a symptom that generates psychological and physiological changes that can worsen the health

situation. Thus, pain control and relief, with pharmacological and non-pharmacological interventions appropriate to each case, is fundamental; a recent study reported that patients with acute pain had undergone invasive procedures.[25] Pain is the fifth vital sign, and its assessment must consider the multidimensional aspects of patients.

Regarding the indicators "physical well-being (201002)" and "comfortable position (201004)," both the procedure itself and the prolonged time of bed rest after PRB can cause pain and physical discomfort.[2] Hence, evaluating aspects related to patient comfort is essential to improve patient well-being. Factors such as autonomy to seek a comfortable position and pharmacological and non-pharmacological methods to maintain physical well-being are considered relevant to assess these indicators.

This set of clinical indicators, based on the results of the NOC, provides a basis for the nurse to evaluate the patient's status and identify early signs and symptoms of possible complications after PRB. Thus, the nurse can implement interventions that help manage or minimize the occurrence of these complications. The clinical indicators selected by the specialists allow us to infer that their application in clinical practice may contribute to improving Nursing care.

CONCLUSIONS

The 11 clinical indicators selected in the NOC synthesized the main points for evaluating the patient submitted to PRB and are in line with the complications resulting from this procedure most frequently identified and described in the literature. These complications include risks that range from bleeding and pain, in different locations and degrees, to the simple discomfort caused by the positioning and resting time of the patient in bed after the procedure.

It is inferred that the conceptual and operational definitions constructed for the NOC indicators reduce the subjectivity of assessments in clinical nursing practice and contribute to using this standardized language in the more accurate assessment of the patient submitted to RBB. Thus, nurses may have an instrument to help identify signs of complications resulting from PRB, intervening appropriately. Therefore, it is believed that the study contributed to scientific knowledge on Nursing care for patients who undergo PRB and, consequently, to the planning and evaluation of Nursing interventions.

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